the Rocky Mountains which the Association is invited to visit, several Alpine species novel to European botany may be met with; and farther south the peculiar forms increase. On the other hand, it is interesting to note how many Old World species extend their range southward even to lat. 36° or 35°.

I have not seen the Rocky Mountains in the Dominion; but I apprehend that the aspect and character of the forest is Canadian, is mainly coniferous, and composed of very few species. Oaks and other cupuliferous trees, which give character to the Atlantic forest, are entirely wanting, until the southern confines of the region are reached in Colorado and New Mexico, and there they are few and small. In these southern parts there is a lesser amount of forest, but a much greater diversity of genera and species, of which the most notable are the Pines of the Mexican plateau type.

The Rocky Mountains and the Coast Ranges on the Pacific side so nearly approach in British America that their forests merge, and the eastern types are gradually replaced by the more peculiar western. But in the United States a broad, arid, and treeless, and even truly desert region is interposed. This has its greatest breadth and is best known where it is traversed by the Central Pacific Railroad. It is an immense plain between the Rocky Mountains and the Sierra Nevada, largely a basin with no outlet to the sea, covered with Sage-brush (*i.e.* peculiar species of Artemisia) and other subsaline vegetation, all of grayish hue; traversed, mostly north and south, by chains of mountains, which seem to be more bare than the plains, but which hold in their recesses a considerable amount of forest and of other vegetation, mostly of Rocky Mountain types.

Desolate and desert as this region appears, it is far from uninteresting to the botanist; but I must not stop to show how. Yet even the ardent botanist feels a sense of relief and exultation when, as he reaches the Sierra Nevada, he passes abruptly into perhaps the noblest coniferous forest in the world—a forest which stretches along this range and its northern continuation, and along the less elevated ranges which border the Pacific coast, from the southern part of California to Alaska.

So much has been said about this forest, about the two gigantic trees which have made it famous, and its Pines and Firs which are hardly less wonderful, and which in Oregon and British Columbia, descending into the plains, yield far more timber to the acre than can be found anywhere else, and I have myself discoursed upon the subject so largely on former occasions, that I may cut short all discourse upon the Pacific coast flora and the questions it brings up.

I note only these points. Although this flora is richer than that of the Atlantic in Coniferæ (having almost twice as many species), richer indeed than any other except that of Eastern Asia, it is very meagre in deciduous trees. It has a fair number of Oaks, indeed, and it has a Flowering Dogwood, even more showy than that which brightens our eastern woodlands in spring. But altogether it possesses only one-quarter of the number of species of deciduous trees that the Atlantic forest has; it is even much poorer than Europe in this respect. It is destitute not only of the characteristic trees of the Atlantic side, such as Liriodendron, Magnolia, Asimina, Nyssa, Catalpa, Sassafras, Carya, and the arboreous Leguminosæ (Cercis excepted), but it also wants most of the genera which are common throughout all the other northern temperate floras, having no Lindens, Elms, Mulberries, Celtis, Beech, Chestnut, Hornbeam, and few and small Ashes and Maples. The shrubbery and herbaceous vegetation, although rich and varied, is largely peculiar, especially at the south. At the north we find a fair number of species identical with the eastern; but it is interesting to remark that this region, interposed between the North-East Asiatic and the North-East American and with coast approximate to the former, has few of those peculiar genera which, as I have insisted, witness to a most remarkable connection between two floras so widely sundered geographically. Some of these types, indeed, occur in the intermediate region, rendering the general absence the more noteworthy. And certain peculiar types are represented in single identical species on the coasts of Oregon and Japan, &c. (such as Lysichiton, Fatsia, Glehnia); yet there is less community between these floras than might be expected from their geographical proximity at the north. Of course the high northern flora is not here in view.

Now if, as I have maintained, the eastern side of North America and the eastern side of Northern Asia are the favoured heirs of the old boreal flora, and if I have plausibly explained how Europe lost so much of its portion of a common inheritance, it only remains to consider how the western side of North America lost so much more. For that the missing types once existed there, as well as in Europe, has already been indicated in the few fossil explorations that have been made. They have brought to light Magnolias, Elms, Beeches, Chestnut, a Liquidambar, &c. And living witnesses remain in the two Sequoias of California, whose ancestors, along with Taxodium, which is similarly preserved on the Atlantic side, appear to have formed no small part of the Miocene flora of the Arctic regions.

Several causes may have conspired in the destruction;—climatic differences between the two sides of the continent, such as must early have been established (and we know that a difference no greater than the present would be effective); geographical configuration, probably confining the migration to and fro to a long and narrow tract, little wider, perhaps, than that to which it is now restricted; the tremendous outpouring of lava and volcanic ashes just anterior to the Glacial period, by which a large part of the region was thickly covered; and, at length, competition from the Mexican plateau vegetation,—a vegetation beyond the reach of general glacial movement from the north, and climatically well adapted to the south-western portion of the United States.

It is now becoming obvious that the Mexican plateau vegetation is the proximate source of most of the peculiar elements of the Californian flora, as also of the southern Rocky Mountain region and of the Great Basin between; and that these plants from the south have competed with those from the north on the eastward plains and prairies. It is from this source that are derived not only our Cacteæ but our Mimoseæ, our Daleas and Petalostemons, our numerous and varied Onagraceæ, our Loasaceæ, a large part of our Compositæ, especially the Eupatoriaceæ, Helianthoideæ, Helenioideæ, and Mutisiaceæ, which are so characteristic of the country, the Asclepiadeæ, the very numerous Polemoniaceæ, Hydrophyllaceæ, Eriogoneæ, and the like.

I had formerly recognised this element in our North American flora, but I have only recently come to apprehend its full significance. With increasing knowledge we may in a good measure discriminate between the descendants of the ancient northern flora and those which come from the highlands of the south-west.

BRYN MAWR COLLEGE

THIS College is an Institution for Women, founded by the late Dr. Joseph W. Taylor; the following account of its foundation and objects, from the *Philadelphia Ledger*, has been kindly forwarded to us by Prof. Sylvester.

The work on the buildings and other preparations for the opening of the College are being pushed forward as expeditiously as possible, so that everything will be ready by June next. This new educational institution, it will be remembered, was founded by the late Joseph W. Taylor, M.D., a prominent member of the Society of Friends, of Burlington, N.J., who bought the land—about thirty-two acres—and began the erection of the college buildings in 1879. He died in January, 1880, leaving an endowment of 800,000 dols. for the continuance of the work he had begun—the erection and starting of a college for women.

By the terms of the will of the founder, the Trustees are members of the Society of Friends, but the students may be of any denomination, and their religious belief is to be respected. It was part of the purpose of Dr. Taylor to give to women of intelligence and refinement the best opportunities for culture, combined with Christian influences and social amenities. Scholars under sixteen years will be ineligible for admission. The Board of Trustees consists of: President—Francis T. King, of Baltimore, Md.; Charles S. Taylor, Burlington, N.J.; James C. Thomas, Baltimore, Md.; James E. Rhoades, Philadelphia; James Whitall, Philadelphia; John B. Garrett, Bryn Mawr, Penn.; Charles Harteshorne, Philadelphia; David Scull, Jr., Philadelphia; William R. Thurston, New York City; Albert K. Smiley, Lake Mohonk, N.Y.; Francis R. Cope, Philadelphia; Philip C. Garrett, Philadelphia, and Edward Bittle, Philadelphia.

As Dr. Taylor did not wish the college named after him, the Trustees have given the title of Taylor Hall to the main building, in commemoration of his munificent bequest. This building,

according to the plans, will contain rooms for chemical, biological, and botanical laboratories, a library and reading room, a handsome assembly room, and recitation rooms. It will be 130 feet long, three stories in height, and constructed of Port Deposit granite stone. Work on it was begun in August, 1879.

The second building, Merion Hall, contains the dormitories. It is built of Fairmount stone, three stories high, and will be 160 feet long, affording accommodation for fifty students and caretakers. The study rooms are to be so arranged that two of the pupils will use one in common, each pupil having a bedroom on either side of the study room. The latter apartments will each have an open fireplace, but the building will be warmed by air heated by steam, and carried through the house under slight pressure from a fan. All rooms occupied by the students are to be ventilated by a main shaft which acts as a chimney for the boiler house, so that a constant current of warm air reaches the rooms, while at the same time the vitiated air is withdrawn. All the bathing and plumbing arrangements have been placed in one wing, constructed with great care, and are ventilated by force ventilation. The dining-room entrance, hall and parlour, are to be appropriately fitted up.

For the gymnasium the plans provide a brick building, 80 by 74 feet. It will contain a main hall, supplied with the most perfect appliances in use by Dr. Sargent at Harvard College, offices, dressing-room, baths, and an examination room, in which a record of the exercises will be kept. A track, raised nine feet from the floor, and extending around the building on the inside, will also be provided, in order to permit the students to run or walk when inclement weather prevents out-door exercise. The gymnasium will be under the charge of a lady trained by Dr. Sargent, who will be the instructress in light gymnastics. Under her direction all exercises will be carefully regulated to the strength of the students, to insure normal development and avoid all danger of over-exertion.

The laundry will contain the boilers which will furnish heat and hot water to the other buildings, in addition to the necessary appliances of a laundry. A house is being built on the adjoining lot for the President, and three cottages which are already on the premises are to be used for the Faculty or to accommodate any overflow of students from Merion Hall until other permanent structures like it are built. The plan adopted contemplates four such structures, to hold 160 students. The total cost of the buildings, including construction and furnishing of laboratories, providing for heating and water supply, the purchase, grading, and ornamenting the grounds, a complete system of drainage on the Waring system, and furniture, will probably exceed 200,000 dols.

It is understood that a large number of applications have already been received by the trustees, and many students whose names have not yet been recorded are known to be preparing. The college will be one of strictly high grade, and will have no preparatory department. The "group system" of arranging studies in the college course, which is adopted, to some extent, in England, but most perfectly represented in the Johns Hopkins University at Baltimore, is to be used. It secures to the students, it is claimed, a thorough training in the two chief ancient and the modern languages, in mathematics, and in some branches of science, besides instruction in metaphysics, drawing, hygiene, and art.

Each department will be under the instruction of specialists, and all students will be required to pursue certain prescribed studies. There will be five fellowships to college graduates who have already distinguished themselves in particular branches of study, namely: Greek, English, mathematics, history, and biology. A scholarship of 500 dols. will be offered yearly to a graduate of Bryn Mawr College to enable her to pursue studies in some European university.

The Trustees, knowing the large expense necessary to procure the best professors, a good library, and a supply of all laboratory appliances required for a college of the best class, have husbanded the funds placed in their hands for the future use of the institution, and it is said but little of the endowment will have been encroached upon before the college opens. Although some of the Trustees are also managers of Haverford College, "Bryn Mawr" will be an independent institution, and practically a Philadelphia one.

The Faculty has not yet been perfected, but the Trustees have made the following selections:—Dean of the Faculty and Professor of English, M. Carey Thomas, Ph.D., University of Zürich; Associate in Botany, Emily L. Gregory, L.B., late in charge of the laboratory work of Harvard Annex, and Teacher of Botany in Smith College; Associate Professor of Biology, Edmund B. Wilson, Ph.D., Fellow in Biology of Johns Hopkins University, and late Lecturer on Biology in Williams College, and Associate Professor of Mathematics; Charlotte Angus Scott, A.B., Sc.B., University of London, and late Lecturer on Mathematics in Girton and Newnham Colleges. It is expected that all the chief appointments will have been made before the appearance of the college catalogue.

Dr. James E. Rhoades, the President of the college, in speaking of women's colleges a few days since, said: "New England has from an early date given great attention to collegiate education, and has at the present time three colleges for women, beside the Harvard Annex. The States south of New England and west of Pennsylvania need a college to give the desired facilities for higher education to the graduates of girls' schools and high schools. A large part of the teaching in the United States is done by women, who, not having the advantages of men, are obliged to take lower and less remunerative positions."

SCIENTIFIC SERIALS

The American Journal of Science, December 1884.—The distribution and origin of Drumlins, by W. M. Davis. The term drumlin is here taken in a generic sense to include any kind of more or less smoothly-rounded hills formed by local accumulation of glacial drift on a foundation of different geological formation. The subject is treated under five heads:—(1) the place of drumlins in a geographical classification; (2) terminology: (3) general description; (4) distribution; (5) origin. —The geological relations and genesis of the specular iron ores occurring in the Sierra Maestra (Coast Range) of the district of Santiago de Cuba, by James P. Kimball.—A new tantalite locality, by Charles A. Schaeffer. The author describes a mineral from the Etta tin mine, Dakotah, hitherto supposed to be casiterite, but which is shown to be tantalite. The analysis gave the following results:—

Tantalic oxide	79·01
Stannic oxide	0·39
Ferrous oxide	8·33
Manganous oxide	12·13
	99·86

—Note on Palæozoic rocks of Central Texas, by Charles D. Walcott. The results are given of a recent survey of a portion of the Palæozoic area in this region, undertaken chiefly for the purpose of studying the Cambrian section and collecting fossils from the Texas Potsdam horizon. Besides procuring fresh data on the Potsdam and Silurian sections and faunas, the author determined the true relations of an area hitherto known as Archæan, but which is now referred to the Cambrian. The age of the granite of Barnet County was also determined.—On the sufficiency of terrestrial rotation for the defection of streams, by A. C. Baines.—Chemical affinity; part iii., the existing problem, by John W. Langley.—Peculiar modes of occurrence of gold in Brazil, by Orville A. Derby. A specimen in the National Museum, Rio de Janeiro, from Ponte Grande, Minas Geraes, shows films of gold on limonite, which the author thinks can scarcely be accounted for except on the hypothesis of natural deposition from solution. The districts of Campanha and S. Gonçalo in the same province afford examples of large auriferous deposits in decomposed gneiss with an almost complete absence of veins and of the other usual concomitants of gold.—On colemanite, a new borate of lime, by A. Wendell Jackson. This substance has recently been determined by J. T. Evans, whose analysis gives the formula:

$$2CaO \cdot 3B_2O_2 \cdot 5\,aq.$$

It differs from pandermite in containing five instead of three molecules of water, but its chief interest lies in its morphological relations.—On the decay of quartzite and the formation of sand, kaolin, and crystallised quartz, by James D. Dana.

Revue d'Anthropologie, tome viii. fasc. 4, 1884. Paris. —A continuation of M. Mathias Duval's lectures on "Transformism," dealing chiefly with the questions of natural selection and survival of the fittest.—Notes on the anatomy of two negroes, by Dr. T. Chudzinski, head of the anatomical department of the Faculty of Medicine at Paris.—On the "Beni-M'Zab," by Dr. Amat. The writer here gives the results of